

INTERNATIONAL SEARCH REPORT

International Application No PCT/FI 91/00011

I. CLASSIFICATION OF SUBJECT MATTER (if several classification symbols apply, indicate all) ⁶		
According to International Patent Classification (IPC) or to both National Classification and IPC		
IPC5: C 12 P 7/18, C 12 N 1/22		
II. FIELDS SEARCHED		
Minimum Documentation Searched ⁷		
Classification System	Classification Symbols	
IPC5	C 12 P; C 12 N	
Documentation Searched other than Minimum Documentation to the extent that such Documents are Included in Fields Searched ⁸		
SE,DK,FI,NO classes as above		
III. DOCUMENTS CONSIDERED TO BE RELEVANT ⁹		
Category [*]	Citation of Document, ¹¹ with indication, where appropriate, of the relevant passages ¹²	Relevant to Claim No. ¹³
A	FR, A1, 2641545 (AGROCINQ) 13 July 1990, see particularly pages 3, 4, 6 --	1,7-8, 13
A	Chemical Abstracts, volume 105, no. 5, 4 August 1986, (Columbus, Ohio, US), J.C. Du Preez et al.: "Xylose fermentation by Candida shehatae and Pichia stipitis: effects of pH, temperature and substrate concentration", see page 604, abstract 41196y, & Enzyme Microb. Technol. 1986, 8(6), 360- 364 --	1-2,7,8, 13
A	Chemical Abstracts, volume 112, no. 5, 29 January 1990, (Columbus, Ohio, US), M.T. Amaral-Collaco et al.: "Utilization of the hemicellulosic fraction of agro-industrial residues by yeasts", see page 449, abstract 34371t, & Enzyme Syst. Lignocellul. Degrad. 1989, (), 221- 230 --	1-3,7,9
<p>[*] Special categories of cited documents:¹⁰</p> <p>^{"A"} document defining the general state of the art which is not considered to be of particular relevance</p> <p>^{"E"} earlier document but published on or after the international filing date</p> <p>^{"L"} document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)</p> <p>^{"O"} document referring to an oral disclosure, use, exhibition or other means</p> <p>^{"P"} document published prior to the international filing date but later than the priority date claimed</p> <p>^{"T"} later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention</p> <p>^{"X"} document of particular relevance, the claimed invention cannot be considered novel or cannot be considered to involve an inventive step</p> <p>^{"Y"} document of particular relevance, the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art</p> <p>^{"&"} document member of the same patent family</p>		
IV. CERTIFICATION		
Date of the Actual Completion of the International Search	Date of Mailing of this International Search Report	
11th April 1991	1991 -04- 17	
International Searching Authority	Signature of Authorized Officer	
SWEDISH PATENT OFFICE	Eva Johansson	

III. DOCUMENTS CONSIDERED TO BE RELEVANT (CONTINUED FROM THE SECOND SHEET)		
Category *	Citation of Document, with indication, where appropriate, of the relevant passages	Relevant to Claim No
A	Chemical Abstracts, volume 114, no. 5, 4 February 1991, (Columbus, Ohio, US), K.B. Taylor et al.: "The fermentation of xylose: studies by carbon-13 nuclear magnetic resonance spectroscopy ", see page 592, abstract 41014y, & J. Ind. Microbiol. 1990, 6(1), 29- 41 --	1-2,7-8
A	Chemical Abstracts, volume 98, no. 9, 28 February 1983, (Columbus, Ohio, US), Gong, Cheng Shung et al.: "Conversion of pentoses by yeasts ", see page 484, abstract 70314c, & Biotechnol. Bioeng. 1983, 25(1), 85- 102 -- -----	1-2,7-8

ANNEX TO THE INTERNATIONAL SEARCH REPORT
ON INTERNATIONAL PATENT APPLICATION NO.PCT/FI 91/00011

This annex lists the patent family members relating to the patent documents cited in the above-mentioned international search report.
The members are as contained in the Swedish Patent Office EDP file on 91-03-23
The Swedish Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
FR-A1- 2641545	90-07-13	NONE	

40/42

treating mixed sugar soln. contg. substrate
~~sugar with Candida yeast~~
ITSU H

te Week
30913 8842 (Basic)
JP 8751896 (870309);
JP 8751890 (870309);

~~treating mixed sugar soln. contg. substrate~~
for sugar with Candida yeast fixed on

glucose, mannose, galactose, xylose,
be used and, as hydrogen donor, sugar,
lactose can be used. As carrier, ceramics,
gelled prod. of kappa-carrageenan, alginate
and polyurethane foam can be used. Candida
etc. can be used. Practically substrate sugar
are dissolved in the buffer soln. of pH
soln. is passed through a column, in which
intermittently or continuously.
Sugar alcohol can be prepd. by simple process
and the obtd. sugar alcohol can be easily
/018

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Minimum Documentation Searched⁷

Classification System

Classification Symbols

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C 12 P

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III. DOCUMENTS CONSIDERED TO BE RELEVANT⁹

Category ¹⁰	Citation of Document, ¹¹ with indication, where appropriate, of the relevant passages ¹²	Relevant to Claim No. ¹³
X	Dialog Information Services, File 351, World Patent Index 81-90, Dialog accession no. 88-297740/42, Horitsu H: "Sugar alcohol prepn. - by treating mixed sugar soln. contg. substrate sugar and hydrogen donor sugar with Candida yeast", JP 63219386, A, 880913, 8842, (Basic) --	1-25
X	Agr.Biol.Chem., Vol. 30, No. 11, 1966 Hiroshi Onishi et al: "The Production of Xylitol. L-Arabinitol and Ribitol by Yeasts", see page 1139 - page 1144 --	1-25
P,X	Chemical Abstracts, volume 112, no. 5, 29 January 1990, (Columbus, Ohio, US), Amaral-Collaco, M.T. et al: "Utilization of the hemicellulosic fraction of agro industrial residues by yeasts ", see page 449, abstract 34371t, & Enzyme Syst.Lignocellul.Degrad. 1989,, 221- 230 --	1-25

¹⁰ Special categories of cited documents:^{"A"} document defining the general state of the art which is not
considered to be of particular relevance^{"E"} earlier document but published on or after the international
filing date^{"L"} document which may throw doubts on priority claim(s) or
which is cited to establish the publication date of another
citation or other special reason (as specified)^{"O"} document referring to an oral disclosure, use, exhibition or
other means^{"P"} document published prior to the international filing date but
later than the priority date claimed^{"T"} later document published after the international filing date
or priority date and not in conflict with the application but
cited to understand the principle or theory underlying the
invention^{"X"} document of particular relevance, the claimed invention
cannot be considered novel or cannot be considered to
involve an inventive step^{"Y"} document of particular relevance, the claimed invention
cannot be considered to involve an inventive step when the
document is combined with one or more other such docu-
ments, such combination being obvious to a person skilled
in the art.^{"&"} document member of the same patent family

IV. CERTIFICATION

Date of the Actual Completion of the International Search

25th April 1990

Date of Mailing of this International Search Report

1990 -04- 27

International Searching Authority

SWEDISH PATENT OFFICE

Signature of Authorized Officer

Yvonne Siösteen